

MOTOROLA SEMICONDUCTOR TECHNICAL DATA



SWITCHMODE POWER RECTIFIERS

designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features

- Ultrafast 50 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Hermetically Sealed Metal DO-203AB Package

**MUR5005
MUR5010
MUR5015
MUR5020**

MUR5020 is a
Motorola Preferred Device

ULTRAFAST RECTIFIERS

**50 AMPERES
50 to 200 VOLTS**



**CASE 257-01
DO-203AB
METAL**

MECHANICAL CHARACTERISTICS

CASE: Welded, hermetically sealed
FINISH: All external surface corrosion
resistant and terminal leads are
readily solderable

POLARITY: Cathode to Case

MOUNTING POSITIONS: Any

MOUNTING TORQUE: 25 in-lb max

MAXIMUM RATINGS

Rating	Symbol	MUR				Unit
		5005	5010	5015	5020	
Peak Repetitive Reverse Voltage	V_{RRM}	50	100	150	200	Volts
Working Peak Reverse Voltage	V_{RWM}					
DC Blocking Voltage	V_R					
Nonrepetitive Peak Reverse Voltage	V_{RSM}	55	110	165	220	Volts
Average Forward Current $T_C = 125^\circ\text{C}$	$I_{F(AV)}$	50				Amps
Nonrepetitive Peak Surge Forward Current (half cycle, 60 Hz, Sinusoidal Waveform)	I_{FSM}	600				Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	-55 to +175				$^\circ\text{C}$

THERMAL CHARACTERISTICS

Rating	Symbol	All Devices	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.0	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage Drop ($I_F = 50$ Amp, $T_J = 25^\circ\text{C}$) ($I_F = 50$ Amp, $T_J = 125^\circ\text{C}$) ($I_F = 100$ Amp, $T_J = 125^\circ\text{C}$)	V_F	1.15 0.95 1.10	Volts
Maximum Reverse Current @ DC Voltage ($T_J = 25^\circ\text{C}$) ($T_J = 125^\circ\text{C}$)	I_R	10 1.0	μA mA
Maximum Reverse Recovery Time ($I_F = 1.0$ Amp, $di/dt = 50$ Amp/ μs , $V_R = 30$ V $T_J = 25^\circ\text{C}$)	t_{rr}	50	ns

MUR5005, MUR5010, MUR5015, MUR5020

FIGURE 1 — TYPICAL FORWARD VOLTAGE

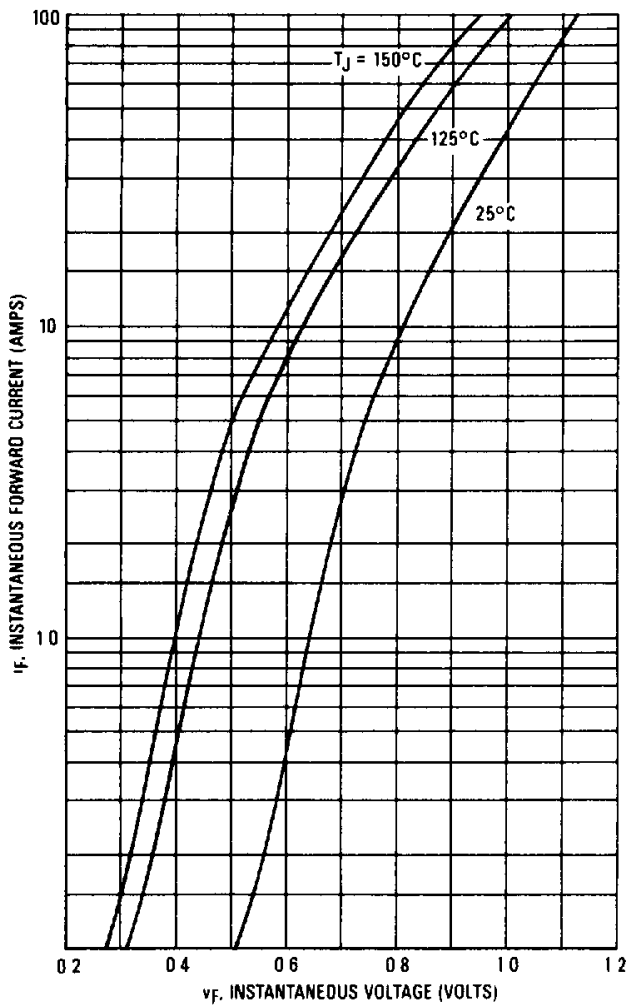
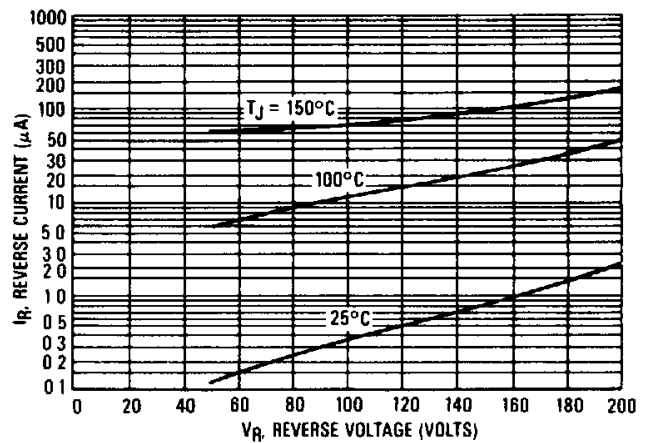


FIGURE 2 — TYPICAL REVERSE CURRENT*



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

FIGURE 3 — CURRENT DERATING, CASE

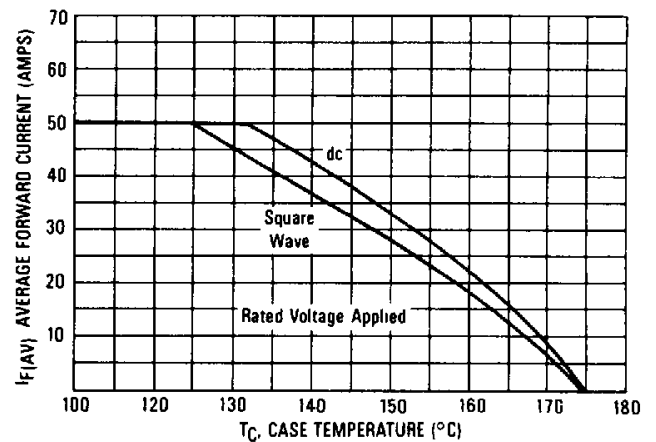


FIGURE 4 — POWER DISSIPATION

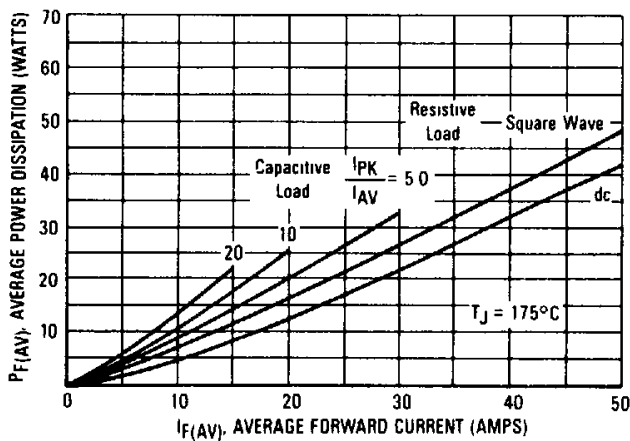


FIGURE 5 — TYPICAL CAPACITANCE

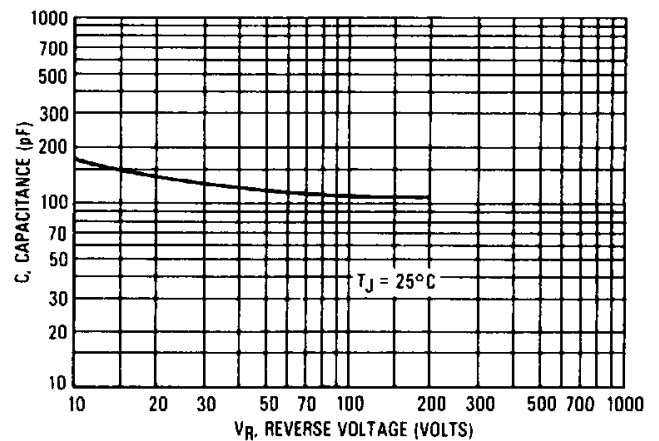


FIGURE 6 — THERMAL RESPONSE

